IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Madnick et al.

SERIAL NO.: 08/657,750   GROUP NO.:   2783

FILED: May 30, 1996   EXAMINER: Davis, W.

TITLE: Querying Heterogeneous Data Sources Distributed
Over A

Network Using Context Interchange

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

DECLARATION OF
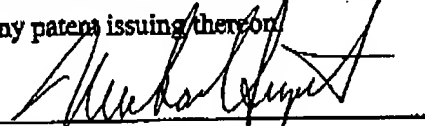## MICHAEL SIEGEL UNDER 37 C.F.R. §1.131

I, Michael Siegel, declare and state that:

1.   I am a named co-inventor of the subject matter claimed in United States Patent
Application Serial No. 08/657,750, titled "Querying Heterogeneous Data Sources
Distributed Over A Network Using Context Interchange".

2.   Prior to making this declaration I have studied the following documents:

(a) the specification of the above-identified patent application;

(b) the claims as amended in the Preliminary Amendment filed herewith;

(c) the Office Action mailed from the United States Patent and Trademark Office
on July 15, 1998; and

(d) the documents cited in the Office Action, including United States Patent No.
5,634,053 to Noble et al., issued on May 27, 1997, and based on Application No.
521,340, filed on August 29, 1995.

3. I submit that prior to August 29, 1995, in the United States, Stuart Madnick and I conceived and reduced to practice a method for querying heterogeneous data sources distributed over a network using context interchange to translate between differences in the semantic context of data stored by the databases. Our conception included the subject matter of claims 1-38.

4. Attached hereto as EXHIBIT A, is a true copy of "The Context Interchange Network Prototype." The pages and the facts contained in Exhibit A constitute evidence demonstrating that Stuart Madnick and I conceived of the claimed invention in the United States prior to August 29, 1995.

5. Specifically, Exhibit A, shows:

(1) the conception of defining a local semantic data context, which is recorded at least at page 9; and

(2) the conception of converting a request to a query having a different semantic data context, which is recorded at least in Section 4 beginning on page 8 and continues through page 21.

6. Messrs. Daruwala, Goh, Hofmeister and Hussein are named as co-authors of Exhibit A. However, their contribution to the paper was the carrying out of explicit instructions given to them by Stuart Madnick or me. After implementing their instructions, they returned to one of us with their results.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true. Furthermore, these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

2/12/99
_____
Date

_____
Michael Siegel

Database Applications Semantics

Proceedings of the IFIP WG 2.6 Working Conference on Database Applications Semantics (DS-6) Stone Mountain, Atlanta, Georgia, U.S.A., May 30 – June 2, 1995

Edited by

Robert Meersman
Free University of Brussels (VUB), Belgium

and

Leo Mark
Georgia Institute of Technology, USA

IFIP – The International Federation for Information Processing

IFIP was founded in 1960 under the auspices of UNESCO, following the First World Computer Congress held in Paris the previous year. An umbrella organization for societies working in information processing, IFIP's aim is two-fold: to support information processing within its member countries and to encourage technology transfer to developing nations. As its mission statement clearly states,

IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

• the IFIP World Computer Congress, held every second year;
• open conferences;
• working conferences.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is small and by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is less rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is in information may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly. National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.

THE CONTEXT INTERCHANGE NETWORK PROTOTYPE

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Abstract

In this paper we describe a prototype implementation of the Context Interchange Network (CIN). The CIN is designed to provide for the intelligent integration of contextually (i.e., semantically) heterogeneous data. The system uses explicit context knowledge and a context mediator to automatically detect conflicts and resolve them through context conversion. The network also allows for context explication; making it possible for a receiver of data to understand the meaning of the information represented by the source data. A financial application is used to illustrate the functionality of the prototype.

1 INTRODUCTION

Large organizations need to exchange information among many independently developed systems. In order for this exchange to be useful, the individual systems must agree on the meaning of their exchanged data. That is, the organization must ensure semantic interoperability. In [Goh94] we have described the Context Interchange approach to providing semantic interoperability. In this approach, assumptions underlying the interpretations of data are explicitly represented as data contexts with respect to one or more shared ontologies. Context mediation is used to examine the differences between data contexts and to determine the transformations required to achieve meaningful data exchange. In this paper we describe the Context Interchange Network (CIN), an implementation of the context interchange approach. Simply stated,